

Appl. No. 10/714,497
Amdt. Dated February 6, 2006
Reply to Office Action of December 8, 2005

Attorney Docket No. 81784.0293
Customer No.: 26021

REMARKS/ARGUMENTS

This Amendment is being filed concurrently with a Request For Continued Examination (RCE), in response to the final Office Action of December 8, 2005.

Claims 1-6 were pending in the application. By this amendment, claims 1 and 3-5 are being amended and claims 2 and 6 are being cancelled, to advance the prosecution of the application. No new matter is involved.

In paragraph 5 which begins on page 2 of the final Office Action, claims 1 and 2 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' admitted prior art in view of USPN 6,354,909 of Boucher et al. In paragraph 5 which begins on page 3 of the final Office Action, claims 3, 4 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' admitted prior art in view of Boucher and further in view of USPN 5,461,008 of Sutherland et al. In paragraph 5 which begins on page 4 of the final Office Action, claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' admitted prior art in view of Boucher and Sutherland, et al. and further in view of USPN 6,454,190 of Cook. Claims 2 and 6 are being cancelled. These rejections are respectfully traversed with respect to claims 1 and 3-5, and particularly in view of claim 1 as it is amended herein. The amendments to claim 3-5 are simply to make them depend from claim 1 in view of the cancellation of claim 2 herein.

A characteristic feature of the present invention is the maintenance of an insulating resin at a temperature lower than a softening temperature and use of a coolant having a pH value ranging from 6 to 8 in the cutting of a semiconductor substrate.

Performing the cutting while cooling a dicing saw and a cutting portion such that they are maintained at a temperature lower than the softening temperature of

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the insulating resin enables, for example, the prevention of molten resin from adhering to the machined surface or the dicing saw. Further, using a coolant having a pH value of 6 to 8 enable suppression of corrosion of an end portion 26 of an internal wiring 24. This avoids generation of sufficient un-evenness on the surface of the end portion 26 of the internal wiring 24, so that a metal wiring 28 can be deposited thereon in such a way that it is not easy to peel.

In contrast, Boucher et al. and Sutherland et al. describe use of a coolant having a pH value of 3.5 to 5.5, but they do not include a description or suggestion of using a coolant having a pH value of 6 to 8 when cutting a laminated structure including an insulating resin. Moreover, Cook only discloses a cooling system wherein cooling is performed simply by applying mist, and does not include description or suggestion relating to a dicing saw.

As amended herein, claim 1 is submitted to clearly distinguish patentably over the prior art. The claim defines a semiconductor device manufacturing method including first, second, third and fourth steps. The second step is performed while cooling the dicing saw and a cutting portion to be maintained at a temperature lower than the softening temperature of the insulating resin "by spraying a coolant having a pH value ranging from 6 to 8 on the dicing saw".

Claims 3-5 depend from and contain all of the limitations of claim 1, so as to also distinguish patentably over the prior art.

In conclusion, claims 1 and 3-5 are believed to be in condition for allowance for the reasons set forth above. Therefore, reconsideration and allowance are respectfully requested.

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Respectfully submitted,

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